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FATAL ACCIDENTS IN THE ICELANDIC FISHING FLEET 1980-2005

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ABSTRACT

The paper describes how the Icelandic fleet increased from 1980 to 2005, as well as the number of fishermen employed in the various sections of the fleet.

All categories of the fleet have increased considerably in tonnage, while the number of fishermen has declined. At the same time the catch per man-year at sea has increased, rendering the Icelandic fisheries among the most efficient in the world in terms of catch and value per manpower.

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The number of fatalities in the Icelandic fisheries has declined steadily in this period. In absolute numbers these accidents are most common on decked vessels under 45m, but when weighed against man-years, fishermen on open boats are in greatest danger of losing their lives. The most common cause of fatalities is foundering of the vessel, which may cause multiple fatalities, then is man-over-board, followed by drowning in harbour and miscellaneous accidents. The reduction in the number of fatal accidents at sea may have several reasons. Mandatory safety and survival training of all fishermen, improved working conditions at sea, better telecommunications, constant VMS surveillance and a 24hr availability of airborne rescue teams have all helped to reduce fatalities in the Icelandic fishing fleet from 1980 until 2005.

INTRODUCTION

Utilizing the resources of the sea has always been of prime importance for the survival of the Icelandic people. The importance of fisheries for the economy peaked in the late 20th century but in 2006 seafood still constituted about 70% of the total export value of goods. Seafood provides about 15% of the gross domestic product (GDP), and fishing and processing employ about 13 600 people¹.

Iceland is situated in the North Atlantic where the waters are cold and winters are harsh. The main fishing seasons of trawlers and open boats is during the dark winter months, when seas can be high and the weather bad. Under these conditions working on deck can be extremely dangerous.

Icelanders have recognized the dangers that accompany fishing at sea and the importance of training fishermen properly to work under these conditions.

Maritime Safety and Survival Training Centre (MSSTC) was launched in 1985 and initially provided safety courses as a voluntary option for fishermen. The training programmes have subsequently been made mandatory for all fishermen on vessels over 20 Gross Registered Tons (GRT). By May 2007 twenty one thousand fishermen and sailors have attended courses at the MSSTC².

This paper reports the composition of the Icelandic fishing fleet and fatal accidents at sea in the period between 1980 and 2005.

MATERIAL AND METHODS

Much of the data on the development of the fleet comes from the records of The Fishery Association of Iceland, which published comprehensive information on the

Icelandic fisheries under the name of *Útvegur* from 1980 until 1997³. These records include information on the tonnage, age and engine power of all vessels, catch by species, vessel category and gear type, and manpower by vessel category.

Data from 1997 until 2005 was obtained from *Statistics Iceland* which publishes yearly records along with online information that includes the Icelandic fisheries⁴. Finally we consulted the *Register of Icelandic decked ships and open boats*, compiled by the Icelandic Maritime Administration⁵.

Vessels are defined into categories basically by size, open boats being at the most 15m in length, decked vessels 15m-45m and trawlers 45m and more. Open boats are built according to the Nordic Boat Standards⁶ generally of glassfibre reinforced plastics, with a modern engine, harvesting and communications equipment.

Data on fatal accidents at sea in Iceland are readily available. All fatal accidents at sea are investigated by The Icelandic Marine Accident Investigation Board. One of the authors (HS) is a member of the board and has direct access to all its information. He has in addition for decades collected data on accidents at sea (both fatal and non-fatal) as Director of the Marine Safety and Survival Training Centre.

THE COMPOSITION OF THE ICELANDIC FISHING FLEET

The Icelandic fishing fleet increased both in number of vessels and tonnage during 1980-2005⁷ as is shown in Figs 1 and 3. There was a dramatic 70% increase in the total number of vessels in the decade between 1980 and 1990, mostly in open vessels but also in small decked vessels. From 1990 until 2005 the number of small vessels slowly declined, but in 2005 it was still significantly higher than they had been at the start of the period. Similarly the displacement of small decked vessels had increased by 700% from about 500 GRT to almost 4000 GRT. Some of the open boats were converted into decked vessels. The increase in numbers does not apply to trawlers, which lost numbers by about one fourth, while the total displacement of trawlers increased by more than 20%, from 42500 GRT in 1980 to 52000 GRT in 2005, as shown in Fig 3.

The number of fishermen in every category of the fleet declined dramatically during these years, as is shown in fig. 2 While the total number went from 6300 in 1980 to 5000 in 2005, the number of fishermen on decked vessels and open boats decreased by more than half. The fact that the number of vessels increased while the number of fishermen went down, reflects that the crew on each boat was getting progressively smaller.

Figure 1

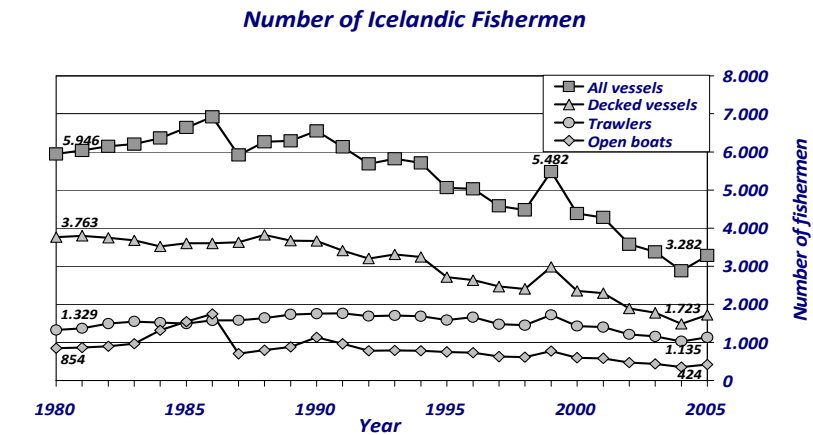


Figure legend 1. The number of vessels in the Icelandic fishing fleet by category 1980-2005.

The number of open and small decked vessels increased in the period, with a 70% increase in the total number of vessels between 1980 and 1990. From 1990 until 2005 their number slowly declined, but was till significantly higher in 2005 than it had been at the start of the period. The number of trawlers, however, was reduced by one fourth in 1980-2005.

Figure 2

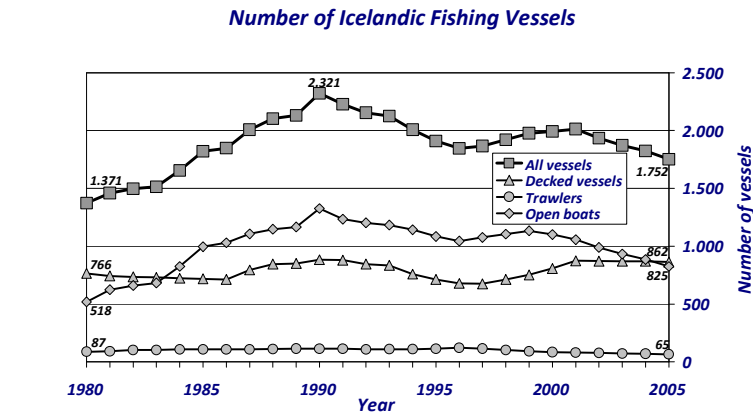


Figure legend 2. Number of fishermen by the category of Icelandic fishing fleet 1980-2005.

The total number of fishermen declined from 6300 in 1980 to 5000 in 2005. The reduction was most dramatic on decked vessels and open boats, where the numbers decreased by more than half.

Figure 3.

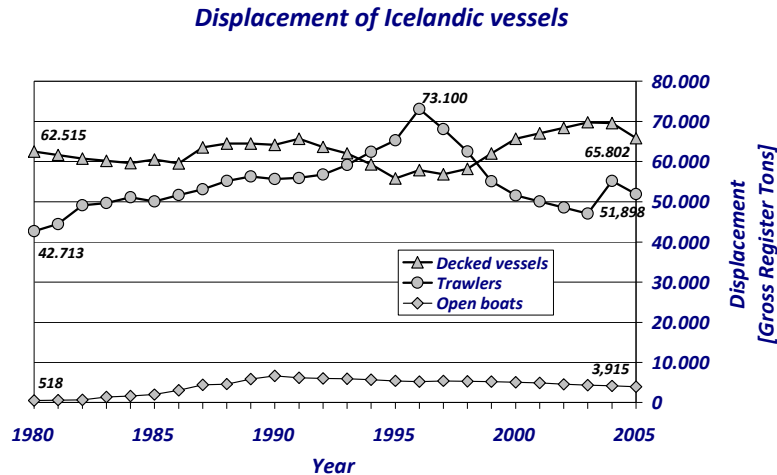


Figure legend 3. Displacement of vessels by category of the Icelandic fishing fleet.

All categories increased markedly, most notably small decked vessels, which went from 500 GRT to 4000 GRT in 1989-2005. The displacement of trawlers increased by more than 20%, from 42500 GRT in 1980 to 52000 GRT in 2005.

In spite of the decline in number of vessels and fishermen, the efficiency of the fleet increased steadily, as is seen in Fig. 4, which shows the number of man years spent in the Icelandic fisheries, as well as the catch per man-year.

Figure 4

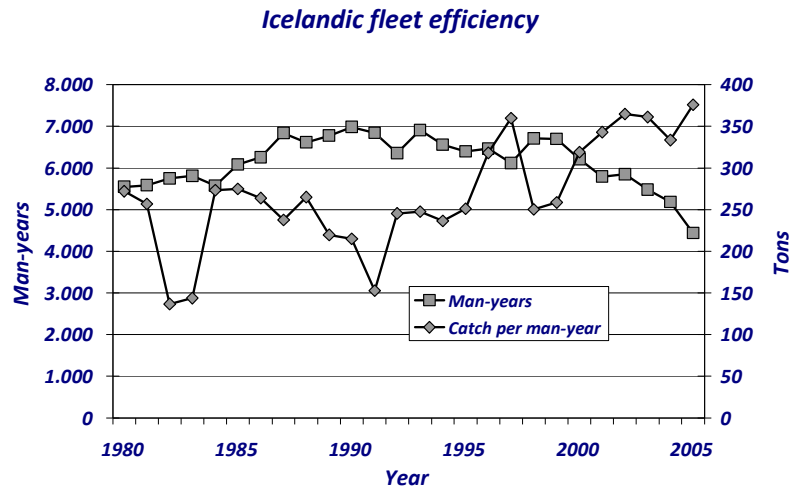


Figure legend 4.

The efficiency of the Icelandic fleet as catch per man-year at sea in 1980-2005.

While the number of man-years at sea declined in the period, the catch per man-year increased markedly, reaching 330 tonnes caught per man-year in 2005.

Proportionally the trawlers provide by far the greatest value, with one third of the manpower at sea catching one fifth of the total catch, providing 42,5% of the total value. The open vessels have about 13% of the total manpower catching 0,009% of the total catch and providing 2% of the total value as shown in Fig.5.

Figure 5

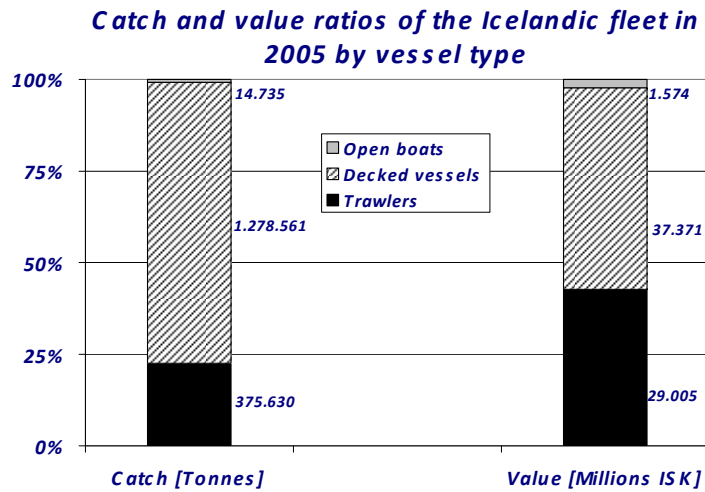


Figure legend 5. Comparing the catch of each of the three fleet categories (left panel) and the value of the respective catch (right panel) reveals that the trawlers provide by far the greatest value, catching one fifth of the total catch and providing 42,2% of the total value. The open vessels catch 0,009% of the total catch and provide 2% of the total value.

OCCURANCE OF FATAL ACCIDENTS

The number of fatal accidents among Icelandic fishermen has been steadily declining during the period from 1980 to 2005, as shown in Fig 6.

Figure 6

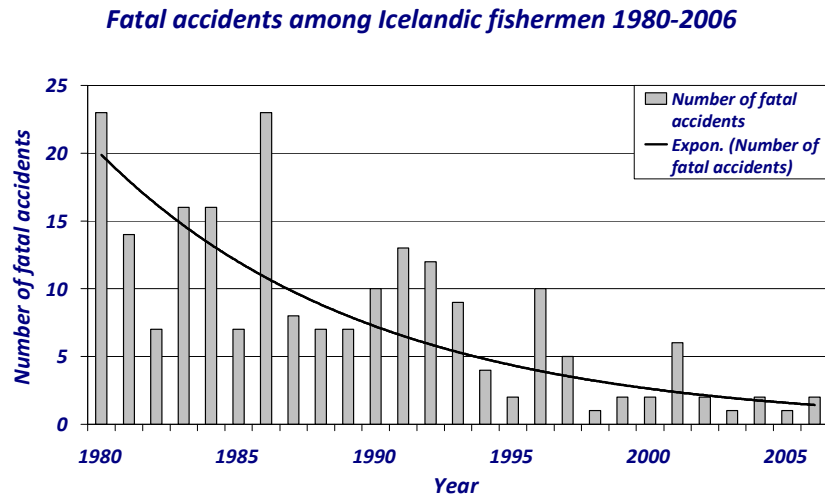


Figure legend 6. The number of fatal accidents among Icelandic fishermen 1980-2005.

This decline holds true when the number of man-years at sea and changes in tonnage of the fleet are taken into account, as shown in Fig. 7

Figure 7

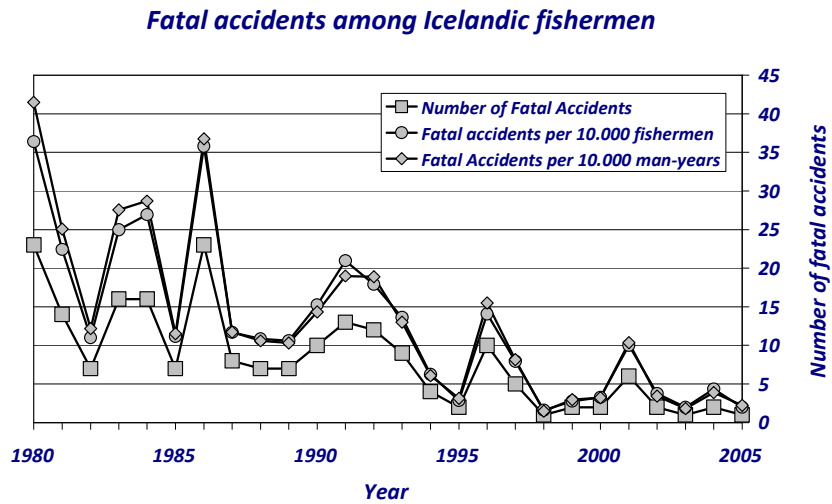


Figure legend 7. The decline in the number of fatal accidents in the Icelandic fishing fleet still holds true when taking into account the number of man-years at sea and changes in tonnage of the fleet.

By far the greatest number of fatal accidents occurs on decked vessels as shown in Fig 8. When, however, the number of man-years yielded in each section of the fishing fleet is taken into account, it stands out that fishermen on open boats are in greatest danger (Fig 9).

Figure 8

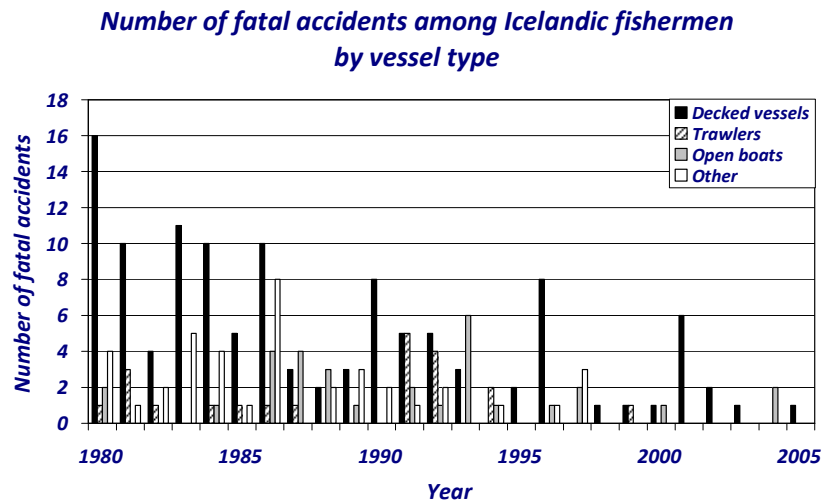


Figure legend 8. The number of fatalities in each category of the Icelandic fishing fleet 1980-2005.

Figure 9

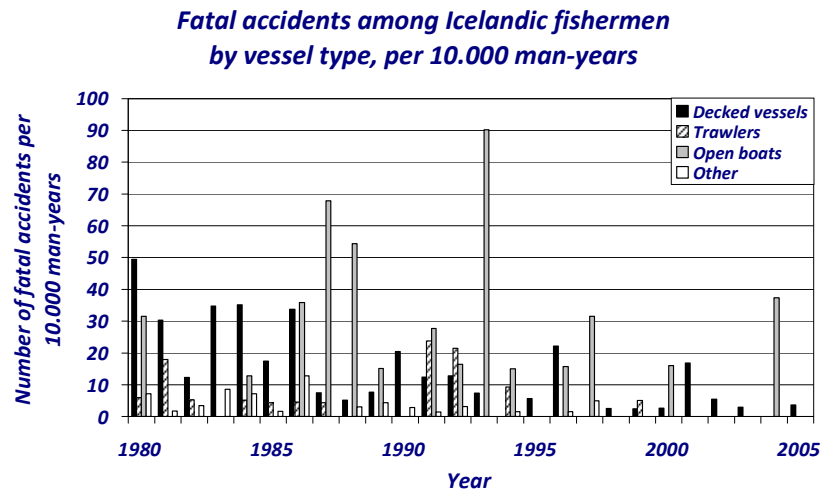


Figure legend 9. The number of fatalities in each category of the Icelandic fleet per 10 000 man-years at sea shows that fishermen on open boats are in greatest danger.

CAUSES OF FATAL ACCIDENTS

Foundering of the vessel has been the most common cause of fatal accidents in Icelandic waters, as shown in fig.10. The next common cause has been man over board. Also, a notable danger lies in falling into the harbour, often between the jetty and the vessel. In addition there is a variety of dangers, often associated with falls or being hit by heavy objects.

Figure 10

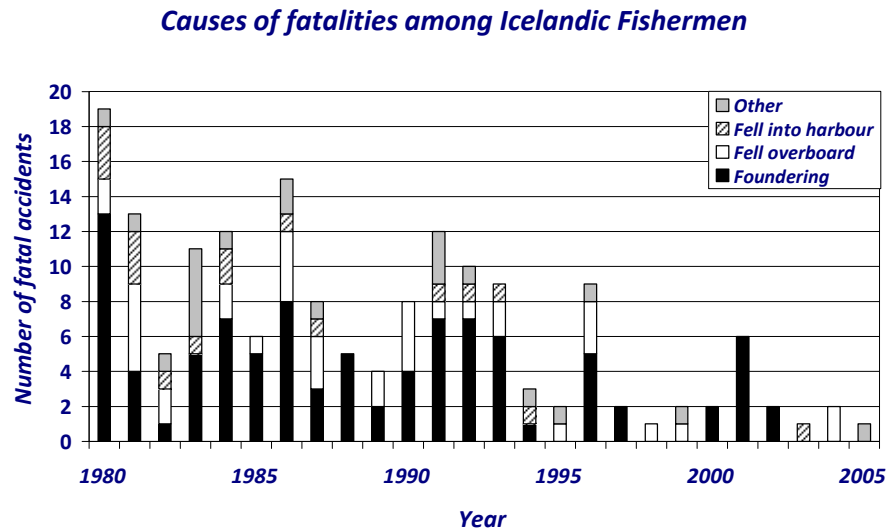


Figure legend 10. Causes of fatalities among Icelandic fishermen 1980-2005. Foundering was the most common cause, with the loss of a vessel often resulting in multiple fatalities.

DISCUSSION

Although the size, both in numbers and tonnage, of the Icelandic fleet has increased in the past decades, the number of fishermen has steadily declined. At the same time the catch per man-year has increased, rendering the Icelandic fisheries among the most efficient in the world, with about 330 tonnes caught per man year in 2005. This reflects the fact that Icelandic vessels are generally well equipped with modern gear both for harvesting and communication.

There has been a steady decline in fatalities at sea in the past 25 years, with occasional peaks, due to multiple casualties when a vessel has foundered. There may be multiple causes for this positive development. The impact of a systematic safety and survival training provided for all fishermen increases steadily, as a progressively greater proportion of all fishermen in the fleet has attended the mandatory safety courses. The vessels are in general getting better equipped, in terms of gear and work conditions.

Communications have also improved greatly in all sections of the fleet. The fleet is under safety surveillance through the Icelandic Ship Report System, in which all fishing vessels are obliged to take part. Telemedicine is provided from the emergency team at the emergency unit of the University Hospital, rescue teams and rescue helicopters are constantly available, and the number of rescue lifeboats in harbours along the coast has been steadily increasing.

All these factors may have contributed to reducing the number of fatal accidents in the Icelandic fisheries in the past twenty five years.

REFERENCES

¹ Icelandic Fisheries in Figures; The Icelandic Ministry of Fisheries 2006 (see www.fisheries.is)

² Pétursdóttir G, Aasjord H, Snorrason H, Zachariassen T. Maritime Safety Training in Norway and Iceland. 9th International Symposium on Maritime Health, Esbjerg 2007

³ Útvegur, Fiskifélag Íslands 1980 till 1997

⁴ Statistic Iceland; see <http://www.statice.is>

⁵ The Icelandic Maritime Administration; www.sigling.is

⁶ The Nordic Boat Standard, Regulation issued by the Icelandic Ministry of Communications nr 592 1994